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Notes

- 1. Numerical values are rounded with respect to accuracy.
- 2. Data in the figure are not translated and shown as it is.

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FULL CONTENTS

Claim(s)

- [Claim 1] The manufacturing method of the low oil cream-like substance characterized by adding and agitating a lipase agent into the mixture of 30% or less of oil and water.
- [Claim 2] The manufacturing method of the low oil cream-like substance according to claim 1 which is the microorganism to which a lipase agent has lipase productivity.
- [Claim 3] The manufacturing method of the low oil cream-like substance according to claim 1 or 2 which is that in which a lipase agent contains the lipase which has selectivity in the 1st place of glyceride, and the 3rd place.
- [Claim 4] The manufacturing method of the low oil cream-like substance according to claim 1 to 3 with which oil consists of a hydrogenated oil.
- [Claim 5] The manufacturing method of the low oil cream-like substance according to claim 1 to 4 with which the aqueous solution of 30% or less of oil does not contain an emulsifier.

Detailed Description of the Invention

(0001)
 [Industrial Application] Moreover, this invention relates to the manufacturing method of an extremely stable cream-like substance by low oil. It not only can use for manufacture of cream-like food, such as whipped cream in the food industry field, mayonnaise, margarine, and ice cream, but it is widely used for manufacture of cosmetics, drugs, other chemistry articles, etc.

(0002)
 [Description of the Prior Art] In food industry, the needs of low-calorie and low-calorie contentizing are growing with diversification of a consumer's eating habits, and improvement in healthy consciousness in recent years.

(0003)
 The function of the foamability of this cream and the operation of the opposite character of the stability before a whip have been supported by using together saturated fatty acid ester and lecithin as an emulsifier with the cream which uses the former, for example, vegetable oil. However -- conventional cream -- an oily feeling and substance -- the content of the oil which gives the taste to oil and fat is usually required for at least 40% or more, and this had become the high calorie source of cream products.

[0004] Moreover, for example by JP 554-39459B, in order to secure the stability of emulsification product, caseinate, gums etc. are used, but these additives cannot say it as a desirable thing from a point of the flavor of a product.

[0005] Problem(s) to be solved by the invention: Although the preparation methods of various emulsification things including above-mentioned illustration have so far been studied wholeheartedly, the present condition is that physical properties, stability, and the cream-like substance of low oil it can be satisfied with all of a substance in respect of flavor are not developed. Furthermore, usually additives, such as an emulsifier and a stabilizing agent, are indispensable to manufacture of this cream-like substance, these are not used for it, and the cream-like substance which is 30% or less of oil further, and was moreover excellent in firmness and stability is not yet manufactured.

[0006] Therefore, the purpose of this invention is low oil, and not using an emulsifier, a stabilizing agent, a thickener, etc., its η' is also stable over a long period of time, and, moreover, there is in developing the new method of manufacturing a low oil cream-like substance with characteristics, like firmness is good.

[0007] Means for Solving the Problem: This invention was wholeheartedly completed as a result of research that this purpose should be attained, and an oil content is the manufacturing method of the low oil cream-like substance which are several percent - 30% (it is below the same weight %).

[0008] That is, it is the manufacturing method of the low oil cream-like substance characterized by the invention adding and agitating a lipase agent into the mixture of 30% or less of oil, and water. According to this invention, a little salts are added if needed into the mixture of the oil of several percent - 30% of oil, and water. 0.01 to several% of lipase agent can be added, and 10-80 degrees C of cream-like substances can be obtained by a very easy method [say / agitating gently for 30 minutes - several days at a room temperature or 70 degrees C preferably]. Since an operation of a lipase agent will tell if the effect of balancing it is not acquired and if processes at high temperature from 80 degrees C, addition of the lipase agent exceeding several percent is not desirable, in addition, the case where a high-melting point component is included as oil - once - warming - what is necessary is to cool at 80 degrees C or less after fusion, to add a lipase agent, and just to make it set.

[0009] The obtained cream-like substance is a letter of emulsification, its firmness is very good, and it is stable for several months in 4 degrees C.

[0010] Animal a microorganism, vegetation, or the origin can be used for the lipase agent used by this invention. For example, Rhizopus Dele Maber (Rhizopus delemari), MUKURU Mat Hay (Mucor michelii), Alcatigenes Lipase which has selectivity in the 1st place of glyceride, and the 3rd place by the microorganism origin, such as Esary (Alcatigenes sp.), Aspergillus Nigre (Aspergillus niger), Candida SHEPHERDIAE (Candidaceae), Geotrichum Although there are lipase of vegetable origin, such as what is called random type lipase of microorganism origin, such as a candy den (Geotrichum candidum), a soybean, U.S. bean, and a castor seed seed, pancreatic lipase of an animal, etc., it is convenient to usually use these commercial items. The fixed lipase obtained as this lipase agent by conventional methods, such as others, an adsorption process, an ion or a covalent binding method, and extragony elasticity, [lipase / itself] The microorganism with the capability to produce this lipase furthermore yeast, such as mold, yeast, and bacteria, may be used, and a cream-like substance can be obtained similarly.

[0011] As oil, all of vegetable oil and fat, animal fat and oil, or synthetic oil can be used. As animal- and-plant system oil and fat for example, soybean oil, rapeseed oil, cotton seed oil, corn oil, safflower oil, sunflower oil, sesame oil, olive oil, flaxseed oil, castor oil, palm oil, palm kernel oil, palm oil, SAL fat, lard, tallow, cacao butter, illipe butter, Borneo beef tallow, Chinese TALLOW, beef tallow, lard, a milk fat, fish oil, such hydrofined oil fat, such as a cuttlefish oil, judgment fat, and oils, ester polyhydroxy fats and oils, etc. and waxes are mentioned. Shape of normal chain, or side chain-like univalent or polyvalent carboxylic acid which has the saturation or the unsaturated bond which consists of carbon numbers 2-24 is synthetic oil. It can choose out of the group which consists of mono- with the shape of normal chain, or side chain-like univalent or the polyhydroxy alcohol which has the saturation or the unsaturated bond which consists of carbon numbers 1-24 - polyester suitably. For example, there are triglyceride of methyl oleate, isopropyl myristate, maleic acid H₂O stearyl alcohol ester, 2-ethyl-hexanoic-acid triglyceride, octanoic acid, and decanoic acid, propylene glycol H₂H₂H₂N acid ester, etc. In addition, this invention is not limited to the illustration at all.

[0012] When manufacturing a cream-like substance in this invention, addition of an emulsifier, a stabilizing agent, a thickener, etc. is unnecessary, and good as a raw material only at water or demineralized water, oil, and a lipase agent. In addition, in order to acquire the firmness of a better cream-like substance, addition of the chloride of a metal (or univalent) desirable, such as 0.1 to 5% of salt, for example, calcium chloride, and sodium chloride, (or trivalent, carbonate, nitrate, sulfate, etc.) is effective 10 to 10%.

[0013] By the above-mentioned means, the good cream-like substance of the stability of less oil of 10% or less of oil and firmness can be manufactured without adding a stabilizing agent, a thickener, an emulsifier, etc.

[0014]
[Example]

[0015] It is MIXTURE to the mixture which consists of 100ml of work-example 1 demineralized water, and 10g of palm oil. Add 0.2ml of lipase (made in Nobei INDUSTRY Japan, trade name "PARALAZE 1000") of the Kyo Hay (Kyo Hay (Kyo Hay) origin, and set it to a room temperature. Homomixer is used for 4 hours, and it is 200rpm. It agitated. As a result, this solution was stable for becoming the shape of good cream of firmness and oil and moisture not dissociating for three months at 4 degrees C.

[0016] To the mixture which consists of 100ml of work-example 2 demineralized water, and 20g of rapeseed oil, it is Rhizopus. Oleic Ester (Rhizopus delemar) 1ml of lipase (product (made from Amano Pharmaceuticals), trade name "Lipase D" (0.1mg/ml aqueous solution of the origin were added. Furthermore, potassium chloride and calcium carbonate were added 1%, respectively, and it agitated by the same method as a work-example 1 at 37 degrees C. Firmness and the flavor of the obtained cream-like substance were good, and it was stable for three months at 4 degrees C.

[0017] Calcium chloride and sodium chloride are added to the mixture which consists of 100ml of work-example 3 tap water, and lard 20g (1% each). 1ml of lipase (product (made by Amano), reagent) 1mg/ml aqueous solution of pig pancreas origin are added, and it is 200rpm at 40 degrees C. It agitated by homomixer for 1.5 hours. The obtained cream-like substance was stable for three months in 4 degrees C like the above-mentioned work-example.

[0018] It is lipase production bacillus MIXTURE to the mixture which consists of 100ml of work-example 4 demineralized water, 10g of soybean oil, and 1g of yeast extracts. They are 200rpm of 1 platinum-loop ***** about SAKA SHINKO KEN KEN (Kikyo carmeloides, JFDS 392). It agitated for 6 or days.

As a result, the cream-like substance which was excellent in firmness was able to be obtained.
[0018] The lichenic acid isostereol alcohol ester stage which is of work-example 3 top water compounded with the conventional method separately, and lipase (the Asahi Sangyo Co., Ltd. make --) of the Candida SHIBUNICIZABE (Candida cylindracea) origin (Trade name "Lipase CF" kind of 0.5g/ml aqueous solutions) is used and agitated like the work-example 1. Form was held for five months at 4 degrees C, and separation of the component was not accepted, but the cream-like substance obtained by this was stable.

[0019] They are 40 degrees C and 200rpm, following as this work-example 6, work-example 1 using the conventional of a description. It agitated for 5 hours. Even if the obtained cream-like substance assumed, be whipped smooth feeling of cream, and was excellent in firmness, and it saved it for three months at 4 degrees C, it was stable.

[0020] Add 0.2ml of lipase (made in Novo ASHICHIKAI Japan, trade name "PAPAYASE 1000") of MYKOPOLMARIKI (Chinese archery) origin to the mixed solution which consists of 100ml of work-example 7 deionized water, and triolein 20g, and set at 40 degrees C. It agitated by the same method as a work-example 1, and cold cream was obtained. The obtained cold cream was well extended to skin, and was good cold cream also with sufficient familiarity.

[0021]

[Effect of the Invention] The stable cream-like substance excellent in the savory firmness of low oil whose oil content is 30% or less can be obtained by simple operation, without using additives, such as a raw emulsifier, a stabilizing agent, and a thickener, if the technique of this invention is used. By this, manufacture of fats-and-oils content food, such as whipped cream and margarine with a low calorie, and margarine, or cosmetics, drugs, etc. is attained.

[Translation done.]